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LECTURES ON HERNIA, GIVEN AT THE CITY HOSPITAL, BOSTON.

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[Communicated for the Boston Medical and Surgical Journal.]

No. III.—*On Wood's Operation for a Radical Cure.*

FOUR forms of operation for the radical cure of hernia have been proposed by Mr. John Wood, of King's College Hospital, London. They all aim to secure a subcutaneous union of the walls and pillars of the hernial opening, and a subcutaneous adhesion of invaginated tissues.

The first form has usually been done with a hemp suture, as follows:—

The patient is etherized, and the hernia reduced. An incision, about an inch and a quarter long, is made through the skin of the scrotum over the sac. The skin is subcutaneously separated from the spermatic fascia which invests the cord and tunica vaginalis, and in which the testis is loosely slung. This separation is carried so far that the spermatic fascia can be pushed up and invaginated, without drawing in the skin. The finger is then carried up into the inguinal canal, carrying this fascia and the hernial sac before it. The finger is hooked under the inner pillar and conjoined tendon, as high up near the inner ring as can be reached; the cord, meanwhile, lies behind the finger, in the fold behind Poupart's ligament, and out of harm's way. The *transversalis fascia* and the epigastric artery lie behind the finger. The peritoneum is wholly out of the way; unless the hernia be congenital, or the sac be adherent and irreducible, in which case it is perforated. The hernia needle is carried up on the finger; perforates first, the invaginated spermatic fascia and sac, next the conjoined tendon and inner pillar, and, finally, the skin of the abdomen. One end of the thread is then passed through the eye in the point of the needle, and the instrument withdrawn. Next the needle, still threaded, is passed up, a second time, on the finger, made to perforate the outer pillar, and then the skin of the abdo-

men, through the first puncture. A loop of thread being retained over the abdomen, the needle is withdrawn, and, still threaded, made to perforate the conjoined tendon, triangular ligament and inner pillar, close to the edge of the rectus muscle. Emerging through the same puncture in the skin of the abdomen, the needle is unthreaded and withdrawn. We now have above, a loop, whose ends are through the outer pillar, and two free ends, which go through the conjoined tendon and inner pillar. These are now drawn up, and tied together over a roller, or block; thus drawing together the two pillars, the conjoined tendon, and the spermatic fascia and sac, and occluding the opening. The patient is put to bed, with a spica bandage applied, and, at the end of some days, when loose, the sutures are withdrawn.

Finding that the silk or hemp sutures cut through too soon, Mr. Wood substituted silvered wire; and, as this was difficult to manipulate with the needle armed, he modified the operation, as follows:—

Second Method.—The first steps, up to the passing of the sutures, are the same. The needle is made to perforate the conjoined tendon and inner pillar and skin, as before, and one end of wire hooked on, withdrawn through the scrotum, and disengaged from the needle. The latter is now passed up unthreaded, and perforating the outer pillar and skin, the other end of wire is hooked on and withdrawn, and unhooked. A loop is thus left above, and two free ends below. Then a third stitch is taken across the fascia and sac, in the scrotal incision, clearing the cord, and the wire drawn through that and disengaged. Finally, the lower wires are twisted together, drawn up into the inguinal canal, by pulling on the loop above, and the latter then firmly twisted down on them, in the puncture of the skin of the abdomen. The ends and loop are bent over a roller and fastened, and the hernial opening is thus occluded. After-treatment the same, with horizontal position, spica bandage, &c. The wires can be left in from ten to fourteen days, before loosening, and then withdrawn. Eventually, a truss is worn for six months; and if the operation succeed, the canal is firmly blocked by the invaginated tissues and lymph, and the tendinous openings and conjoined tendon adhere together.

The operation for femoral hernia is described further on, in connection with a case.

The fourth operation, by pins, is for young children, and consists in invaginating the scrotum, skin and all, without cutting, and skewering the pillars together by pins contrived for the purpose.

It will be seen that the principle of all these operations is the same.

Mr. Wood contends that all the operations which have been proposed previously to his own failed, either because they dealt with the sac alone, and thus converted a complete hernia into a bubonocele; or because they tended to *dilate* the ring and canal by invagi-

nating the skin of the scrotum, which latter also was prone to fall out and withdraw the plug, by the weight of the scrotum and elasticity of the skin.

He claims, as peculiar to his operation:—

First; to invaginate the spermatic fascia only, and to place the denuded tissues in the most favorable condition for adhesion, subcutaneously.

Second; to draw together and tend to close, rather than dilate, the tendinous walls of the inguinal canal, by wire sutures, which are not prone to ulcerate, and which are subcutaneous.

Third; to draw forward and fasten the conjoined tendon to the invaginated plug of fascia and lymph, and to the anterior walls, and thus to obviate the tendency to future re-opening at the inner ring.

Before giving a tabular view of the results of operation, certain of my cases require special mention.

Case No. 6 and 7.—A very fat man, a mill operative, with double oblique hernia, complete or scrotal on both sides; rings large and patulous and very deep, beneath a thick layer of fat. Patient very desirous of some operation to enable him to retain his rupture with a truss, so that he can get his living.

He was operated on by the second method. Great difficulty was experienced in getting firm stitches, owing to the depth of the parts. One side broke down soon; the other remained partially occluded.

Case No. 9.—A man of 45 years, of a flabby habit of body, and looking older than his real age. A very large, direct hernia, in consequence of a kick from a horse, which lacerated the pillars of the outer ring very seriously. Rupture cannot be retained by truss. Is very desirous of an operation, expecting only to be able to keep rupture reduced, but not cured. Operated on by second method. At first a good deal of fibrous effusion. Able to keep up bowel by truss for several months, but, at the end of a year, had slowly relapsed.

Case No. 8.—A boy of 13, with oblique hernia; thinks it is not congenital. Operated on by second method. Wires loosened slowly. Allowed to get up at end of third week, with a truss. A varicocele becoming developed, was kept in bed again one week more. At the end of that time, he went about as usual; no impulse to be felt. It is now two years since operation; no impulse or bulging has recurred. There seems little doubt that this is a permanent cure.

Case No. 14 and 15.—A healthy child of 4 years; double congenital hydrocele, of large size, reaching midway down thigh. The child is rendered helpless by this malformation. Other measures having failed, a small quantity of biniodide of mercury was inserted into each sac. The effusion disappeared, but a double scrotal hernia soon followed. Both sides were simultaneously operated on by the second method. The sac on the left side was so large and thickened that, being irreducible, some doubt was felt whether the sac alone,

and no bowel, were in the scrotum. The needle penetrated the peritoneal offset (sac), as it must in a congenital hernia or an irreducible sac. No trouble followed. The wire separated in a week. There was a fair effusion of lymph. A double, soft-padded truss was applied. At the end of one year, there is a very slight impulse. Rupture does not descend when the truss is removed. No hydrocele. There can be no doubt that perseverance with the truss will effect a permanent cure; and the child is rescued from a state of complete helplessness, and restored to freedom of motion, and a better promise in the future.

Case No. 17.—A healthy female of 21 years. A small *femoral* hernia on the left side. Has existed for several years; very troublesome; often nipped; declares she cannot wear a truss on it; opening of crural ring quite small; hernia can be slowly returned. Patient clamorous for an operation, which was at first declined, but ultimately assented to.

The same instruments—wire, &c.—used as in the other operations. Patient etherized; rupture reduced. A short incision made over the tumor. The hernia needle first penetrated the iliac portion of the fascia lata, near the saphenous opening; then, emerging, it was directed up beside the femoral vein, and thence under and through Poupart's ligament and the skin of the abdomen. To this needle-point was threaded and attached one end of wire, which was drawn down and detached. Next, the needle was passed in and out through the pubic portion of the fascia lata, and thence on through Gimbernat's ligament and out through the skin of the abdomen, where the other end of the wire was threaded, drawn down and detached. Finally, a cross-stitch was taken in the sac and fascia, and the whole thing twisted down, bringing Poupart's ligament down near the fascia of the thigh, and thus tending to occlude the crural canal.

I was somewhat apprehensive of phlebitis or lymphatic engorgement, but none occurred. Everything went on very favorably. There was no impulse three months after operation. Patient wears Wood's femoral truss with ease.

The difficulties and risks of this operation are—the proximity of the great vein, the danger of striking the epigastric artery, the rigidity of the crural canal and arch, and the small amount of fascia which is movable enough to be invaginated.

The danger is greater, the chances of cure, *à priori*, less than in the inguinal operation.

This is the *first time* the operation has been done on the *living subject*, so far as I am aware. Mr. Wood describes the operation, as practised on the dead subject.

The following abstract gives the best condensation of all our cases:—

Tabular Statement of Twenty Operations for the Radical Cure of Hernia.

Case.	Sex.	Age.	Nature of Hernia.	Mode of Operation.	Appearance after Operation.	Truss. Occupation.	Success.	Failure.	Ultimate Result.
1	Male.	7	Right oblique Inguinal.	Wire setons (Gerdy's method).	No impulse. Large plug of lymph.	Truss.		1	Truss neglected; child scorbutic. Lymph absorbed at end of five months. Hernia down.
2	"	11	Right oblique Inguinal.	Wires, by Wood's first method.	Moderate effusion.	Tr. for a few wks.	1		No relapse. Lost sight of at end of four months.
3	"	6	Left oblique Inguinal.	Silk, by Wood's first method.	Sutures slough'd through.	Truss.		1	Failure.
4	"	8	Right oblique Inguinal.	Wires, by Wood's second method.	No impulse. Firm effusion.	No truss.		1	At end of eight months, lymph absorbed. Bulging at internal ring.
5	"	9	Right oblique Inguinal.	Wires, by Wood's second method.	No impulse. Firm effusion.	No truss.	1		Lost sight of.
6 & 7	"	35	*Double* oblique Inguinal.	Wires, by Wood's second method.	One side occluded; the other not.	Double truss. — Operative.		2	Both ruptures recurred. *Great obesity* at time of operation.
8	"	13	Right oblique Inguinal.	Wires, by Wood's second method.	No impulse. Varicocele.	Tr. a y'r. Storeboy.	1		Perfect success at end of 2 years.
9	"	45	*Direct;* torn by kick of a horse.	Wires, by Wood's second method.	Some impulse. Rupture reduced two thirds in size.	Truss. Hatter.		1	Gradually enlarged again.
10	"	22	Right oblique Inguinal.	Wires, by Wood's second method.	No impulse. Moderate effusion.	No truss. Sailor.		1	At end of one year, recurred as bubonocele.
11	"	22 mos	Right oblique Inguinal.	Pins (Wood's).	No impulse. Plug of lymph very large.	Soft pad truss.		1	Recurred, with whooping cough.
12	"	48	Right oblique Inguinal.	Wires, by Wood's second method.	No impulse. Small effusion.	Truss. Laborer.		1	Recurred, with cough, at end of three months. At end of one year still much diminished.
13	"	1	Right oblique Inguinal.	Wires, by Wood's second method.	Ring too small to get finger in deep enough.	Truss.		1	Broke down at once.
14 & 15	"	4	*Double* congenital, with congenital Hydrocele.	Wires, by Wood's second method.	Rings very large. Sac on left side very large and thick.	Double truss.	2		At end of one year slight impulse on both sides. Do not come down when truss is removed. No hydrocele.
16	"	23	Right oblique Inguinal.	Wires, by Wood's second method.	No impulse. Considerable suppuration.	Truss. Carpenter		1	End of ten months, some impulse. Lymph absorbed.
17	Female.	21	Left *Femoral.*	Wires, as proposed by Wood.	No imp. Small effusion.	Wood's Femoral Tr. Servant.			At end of five months.
18	Male.	10	Left oblique Inguinal.	Operation begun, and abandoned; hernia adhering to outer ring.				1	
19	"	22	Left oblique Inguinal.	Wires, by Wood's second method.	Slight imp. Small effus.	Truss. Merch't.	1		Recent operation.
20	"	23	Left oblique Inguinal.	Wires, by Wood's second method.	No imp. Large effusion.	Truss. Clerk.	1		Recent operation.
20	19 M. 1 F.		10 Right oblique. 4 Left oblique. 2 Double oblique. 1 Direct. 1 Femoral.	Wood's second method, 14; first method, 2. Seton, 1. Pins, 1. Femoral operation, 1.	No impulse after operation, 10.	Truss, 16. No truss, 3.	7	12	

Covering a period from March, 1863, to April, 1866. Three years. Twenty operations.

The results expressed in this table may be summed up briefly, as follows:—

Recent operations,	2
Operation abandoned,	1
Cases lost sight of,	2
Successful,	3
Failures,	12
Total,	20

Of the twelve failures, four were cases that should not have been operated on; two on account of great obesity; one, because the rupture was direct and the result of laceration; one, because the ring was too small to properly admit the finger. Deducting these four cases, and deducting also the first five on the list, where the operations were recent, abandoned, or lost sight of, and we have left *eleven* fair, average cases—of these, 3 were successful, and 8 failed.

This gives a ratio of success of 27 per centum: whereas Mr. Wood claims 70 per centum of success in a total of 150 cases.

What fair rules can we deduce from the above results; limited in number, it is true, but accurate as far as they go?

I think there can be no doubt that this operation is based on the most correct anatomical principles, and is the most thorough of any proposed. If this will not produce a radical cure of hernia, there is but little prospect that any of the other operations will do so.

It would seem to be a safe operation. In our twenty cases we had no peritonitis, and no death. And a certain additional risk must have been added in our earlier cases from our inexperience as an operator. Mr. Wood reports one death in 150 cases. This solitary case was fatal from pyæmia, or blood-poisoning, and is no greater ratio of mortality than is found in any series of surgical operations, even the most trivial.

This operation palliates, if it fails to cure. It renders an uncontrollable hernia controllable by a truss, in many instances. It tends always to reduce the size of the rupture, and it gives Nature a chance to restore the parts by retention and adhesion. It will cure some adult cases, but they must be cases selected with care and judgment.

It will fail to cure some adult cases. It affords the best chance of a perfect cure in children, from 6 to 12 years of age—after the crying and restlessness of infancy and the first dentition are over, and during the formative period before puberty. Nature then tends to close the rings, and the adhesive inflammation set up by the operation, even if but temporary, is of great assistance in furthering this desirable result.

It is true that the same end may be sometimes attained by trusses—but they must be very faithfully applied for a long while, and an operation shortens this period essentially.

Some adults, also, are undoubtedly eventually cured by hard truss pressure, on the principle formerly advocated by Heber Chase. But the chances of cure by truss pressure alone, are far less in adults than in children.

This operation of Mr. Wood's has not been many years before the medical public. Time alone can fairly test it. It is very possible that all the lymph effused is finally absorbed. The question then arises whether the changes which have been set up in the obliteration of the sac, the approximation of the pillars and the conjoined tendon, and so forth, will prove sufficient to obviate a future tendency to hernial protrusion. It is very certain that we have seen absorption in some cases at the end of four and six months; and in others, of a year.

Having now done the operation some twenty times; having tried all of Mr. Wood's methods, by silk, wires and pins, and also the femoral operation proposed by him, we have preferred to let three years elapse before formally tabulating the results of our operations. Sufficient care, time and labor have been bestowed to guarantee success, if it were attainable in the patients who fell to our lot. Some were improper cases for operation; some were, doubtless, negligent of after treatment, but others were fair, average cases of rupture in healthy males. We must confess that our success has not equalled that claimed by the originator of the operation. What more experience, judgment or dexterity might effect, we know not.

It is, perhaps, not improper to say, that in a letter from Mr. Wood, received a few months since, he makes the following statements:—

"I have now had about 150 cases of hernia under treatment by my operation, of all kinds, young and old, severe and moderate. In nearly all, trusses had been fairly tried; in some, failing to retain the rupture, in the milder cases failing to cure it. All have been urged to let me know if the rupture returned. Of these 150, in 40 the rupture has come back, more or less, but seldom so large as before.

"Mr. Paget, Mr. Haynes Walton and Mr. Redfern Davis have repeatedly done the operation, with success. It has been done extensively in Liverpool, Dublin, in Berlin by Langenbeck, in India and Australia.

"Many cases which I show, have been operated on 4, 5, and 6 years, and have worn no truss after the first year. One man is continuing the laborious occupation of a market garden porter, without a truss, &c. &c.

"I have come to the conclusion that in very large and direct cases in adults after 40 years, only occasional cures can be looked for, but a diminution of the rupture may be calculated on.

"In children before puberty, and in young men, the success of the operation is so decidedly superior to the great uncertainty, and,

when probable, the slowness of cure by truss pressure, and the symptoms are so slight after the operation, that I should not hesitate in submitting myself or a child of mine to it, rather than endure the inconvenience and risk which a hernia, supported by a truss only, entails.

"After all it is an operation of expediency, and liable to all the objections with which such operations are assailed. No man is justified in pressing it upon his patient. He should lay the facts before him fairly, and leave it to him to decide."

We must remember also to tell the patient that he has got to submit to from two to three weeks confinement in bed; to not much pain, but to weariness from position.

It will be both interesting and important to watch for the verdict which time shall set upon this operation. It is to be hoped that it will be largely tried by other surgeons in our own country. Whatever its ultimate value, it promises a certain amount of relief to a most common and distressing infirmity.

SOME OF OUR HABITS OF DOMESTIC AND SOCIAL LIFE.

[An Address before the Norfolk (Mass.) District Medical Society, at its Annual Meeting, May 8th, 1866.]

By Stephen Salisbury, M.D., Brookline.

Perhaps I ought to apologize for appearing before a society of well educated and accomplished physicians with a subject upon which they are undoubtedly as well, and possibly better informed than myself.

Addressing some more experienced, to whom my remarks may appear trite and familiar; others whose education has been more recent, and who are capable of giving me instruction upon sciences which have been developed within a few years; I must expect to be criticized, and I have no wish that it should be otherwise.

As a profession, may we not be congratulated that we are not always travelling in the same routine; that some of the errors by which we were impeded in our earlier practice have been corrected by the more extended use of the improved mechanical means, as the microscope, laryngoscope, and ophthalmoscope, and other advanced methods of investigation; that we have been permitted to learn something, as we believe, of caution if not of more successful practice, even from the absurdities of the various isms and new systems of which so many have been presented to the world within the last thirty years.

Is there not reason for congratulation that there have been advances in knowledge of pathology, and improvements in the management of some of the most fatal diseases; that consumption, or as it is now termed, tuberculosis, which was treated with mercury in

the early part of this century, the pathology of which was so much illustrated by the researches of Laennec and Louis and their disciples, has been recently still more elucidated, so as to correct some important errors which were inferred from their discoveries. When it was first discovered that tubercles accompanied almost every case of chronic disease of the lungs which proved fatal, it seemed to be a necessary inference that in them consisted the disease, and that to get rid of them if possible should be the only object of treatment.

But more recently it has been acknowledged that tubercles are but the local manifestation of a morbid process which has its origin elsewhere; and that they are only secondary to a constitutional affection which may not only be often recognized, and met with appropriate treatment, but still more frequently prevented, by correcting habitual errors of life, which inevitably tend to produce it. Some of our best authorities say that tubercle cannot be cured by any remedy, but good habitual precautions may prevent its development.

Chambers thinks that a single deposit of tubercle may almost always be recovered from; but that it is the tendency to the formation of it which we have to guard against, chiefly by improvement in the habits of life.

Insanity is another disease, the frequency of which may be attributed to the social customs which have been developed by the advance of civilization. It has been said, with how much truth I know not, that no instance of insanity was ever known amongst the aborigines of this or any other country. Dr. Noble has remarked, that the more advanced the civilization of any community, the more abundant are the cases of insanity. That new diseases are the inevitable results of civilization, we are certainly not prepared to acknowledge. Is it not, then, a part of our duty as physicians to discover why it is that these and other diseases have originated or are made more numerous by civilization? It is true, that few individuals have the power, and a very few have the resolution, to put in force the various preventive checks of disease, and thus attain a green old age; but the great mass of society must be contented to make the best compromise they can with the evils that surround them: but it is not less incumbent upon us to direct the way, even if we are fully aware that but very few will be influenced to yield obedience to the rules which may be arrived at. It is of some of the habits of social life, which have so great an influence upon the welfare of our race, that I propose to speak to-day;—not that I am by any means confident that I have arrived at the whole truth in regard to any of them, but I am convinced of the importance of keeping the profession continually active in investigating such agencies.

At the time when the quota of our State for service in the Union army was being filled, some astonishment was expressed at the large number of conscripts who did not come up to the requirements of the examining surgeons. It was replied that the number of those re-

jected did not exceed the proportion of those found unfit in other countries where similar restrictions were exercised. Whether this was true or not, it certainly was the fact, that many were exempt on account of various disabilities, which although not rendering them incapable of the ordinary avocations of life, must detract much from happiness, usefulness and longevity.

It is surely, then, quite as important a subject for the consideration of our profession, how the number of these disabilities, as well as of some chronic diseases may be diminished, and to what they may be attributed, as to decide whether the continuance of diseases may or may not be abridged by active treatment in the early stages.

You will say, perhaps, that many of these disabilities are hereditary. This, if true, only removes the question farther back; and admitting its truth, it is only a consequence of what might have been avoided or improved before in previous generations.

A highly respected authority, Mr. Chambers, has said that very much more than one half of those who leave this life die from imperfect nutrition, and more than one half of those who recover from disease gain that end by restoration of their digestive functions. The freshest air and purest water will be no protection from disease and death, unless the food with which the human system is supplied is possessed of the elements which are necessary for the maintenance of those forces which result in life. Hence, it must be acknowledged that the question as to what we shall eat is deserving of our consideration, although it may not be in accordance with the strict letter of the Scripture injunction. This question, as to what constitutes the best food for man, in all the various conditions of life, is still far from being fully solved. It is my belief, however, that we use much more animal food than is necessary or promotive of our best condition, and that many diseases would be avoided if it were less abundantly supplied; and have we not had abundant evidence of late years that even an army may be starved on an excessive diet of beef? I am not a vegetarian, and am well aware that man, when entirely uncultivated and guided only by that instinct which is sufficient to preserve and increase his race, depends very largely upon meat. Individual constitutions, it is acknowledged, may require a large proportion of meat; also those whose habits and avocations keep them active much of the time in the open air. Yet it is equally true, that many have passed long lives, free from disease, who have used but an extremely limited quantity of animal food. In the large cities and countries of Europe, where the price of meat is so high and wages so low that the laboring class can afford meat but rarely, they possess quite as much, and I think more, muscular strength and apparent health than the same class in this country, who *think* they require meat two or three times a day. I have seen a robust tender of masons taking his dinner of bread and grapes with as much satisfaction as if it had been roast beef, and apparently with as much

benefit from it. Men may be starved on beef alone (as was proved in the Crimea), not less than on arrowroot or corn-starch.

Perhaps of equal importance to the inquiry what we shall eat, is that as to the manner in which it shall be prepared. The subject of cooking deserves much more attention than it has received; and it was well timed that our friend, the Secretary of this Society, has recently drawn the attention of the public to it. I hope he will not let the subject rest until his efforts have resulted in some practical remedy for the amelioration of the evils of bad cookery. The disregard in which it has been held was apparently once sanctioned, if not encouraged, by the stoical resolution of our Puritan progenitors to neglect everything which had the appearance of ministering to the appetite. Whatever the cause, it is evident that *despatch* in the preparation as well as in the disposing of food, has been and still is too much aimed at. It has been said, with some truth, by a recent writer, that we are the worst cooks and the most unwholesome feeders in the world. He thinks that our nervous unrest is to be attributed in a great measure to the universal pie. We must admit this, at least in part. There is no doubt that pie and fried food constitute a very popular, and to housekeepers a very convenient method of supplying food. Doughnuts, pancakes, fritters and the various fried meats and vegetables form too large a proportion of our diet. With these fascinating dishes, our people are tempted to eat more than they require, and too much vital force is expended in the process of digestion. We hear more every year, from pathologists, of the morbid conditions of the blood as a cause of disease, and especially of late, in the fear of an approach of a fearful epidemic. It is not surprising that the fluids should be morbid, when formed of such indigestible if not pernicious materials as we have alluded to.

The hasty manner in which we consume our food, and which is almost universal, even with those who do not know what to do with themselves after the meal is completed, seems to originate in a national characteristic which has been chiefly instrumental in our preeminence as efficient business men—that of doing everything with despatch. Thus a rapid disposal of food has often been supposed to be an indication of a smart and enterprising individual, and I have even heard farmers say that they did not wish any better evidence of a good workman, than to see him get through his meals quickly. This, however, is a serious evil, and leads to indigestion, to imperfect nutrition, and this to various chronic diseases of which thousands die every year. *Edere oportet ut vivas, non vivere ut edas.* Yet eating is an important essential of living, and the manner is not less important.

After swallowing a meal without the necessary mastication, instead of yielding obedience to a natural tendency to rest, which man has in common with other animals, we are apt to hasten too soon to our work, and thus the process which the stomach has to accomplish,

requiring an additional flow of blood to that organ and an expenditure of nervous power, goes on with more difficulty when the means of its support, the nervous influence and the blood, are directed elsewhere.

In considering the subject of food, we should not overlook the remarkable tendency of man to partake of nervous stimulants. The extent to which substances may be taken with impunity which affect the nervous system, has long been an unsettled question; and however it may be decided, there is no doubt that one of the most terrible scourges of the human race is the tendency to indulge to excess in alcoholic beverages. There are, perhaps, some here who will feel that a total abstinence from these beverages is not warranted by the sound conclusion of science; but all must acknowledge the value of the abundance of facts which have been adduced to demonstrate that alcoholic liquors are not necessary for the maintenance of health and strength. In regard to their use in *disease*, there is a marked difference in comparing the practice and precepts of medical men twenty-five years ago and at the present time. When I was one of the resident pupils at the Massachusetts General Hospital, our headquarters was in the apothecary's room, and we were necessarily acquainted with the comparative quantities of different articles used. I am quite sure that the amount of brandy and gin (whiskey had not been introduced then) used for all the patients in the Hospital did not exceed two gallons in the year. I do not know what the practice there is now, but it is certainly very different in private practice. There has evidently been a great change in the practice of physicians in prescribing the use of alcohol in some form. It would be absurd to deny that stimulants of this nature possess a power as remedial agents which could not be supplied from any other source. Even the use of it as an article of diet may be continued for a long time with apparent impunity, when in many instances it is actually laying the foundation for some chronic disease, or for the rapidly fatal result of some acute one.

As in medical practice, so in social life the amount of alcohol used has increased to a degree not easily estimated. Is it not an important question how far the medical profession are responsible, by prescribing alcohol as a medicine, for this change in the habit of using it? I hope that no one of us will make himself liable to the criticism which I have heard pronounced upon an eminent physician who closed his career in the earliest part of this century, whose practice was more conformed to the present than to the time in which he lived. It has been remarked in regard to him, that he was a very successful physician, but made many drunkards. He never used the lancet, but depended chiefly on fomentations and stimulants to meet acute inflammation. He was very popular for a long time, but when the grand discovery was made that mercury was to cure all diseases, not excepting consumption, he was superseded by those who were specially acquainted with the use of that then reputed panacea.

[To be concluded.]

PROF. HUXLEY ON THE RELATION OF PHYSICAL SCIENCE TO MEDICAL EDUCATION.

THE following is the substance of an address delivered by Professor Huxley at the annual distribution of prizes at St. Mary's Hospital Medical School:—

Professor Huxley said that he hardly clearly apprehended at first that a certain gravamen attached to the honor of presiding, in the shape of an address. After a brief introduction, he proceeded to speak of the relations of the physical sciences to medicine and medical education. He defined the object of the science of medicine as being to ascertain the nature of the disability which a diseased person labors under, and the means by which that disability can be removed; and, correlatively, the art of medicine as the skilful use of all those means by which we can ascertain what is the matter with the diseased man and their application to his cure. One great division of these means was derived from, or in its use dependent upon, the physical sciences. The microscope, the ophthalmoscope, the stethoscope, chemical tests, and the other great and familiar means of diagnosis, were all physical appliances. Further than that, every liberally educated medical man should surely know something about the nature of the bodies he is constantly employing. He should certainly, as a man of liberal education, know enough of botany and zoölogy to be on even terms with laymen, and give safe opinions and safe answers concerning the animal and vegetable substances which he uses constantly. He was quite prepared to admit, and indeed had always had a strong conviction, that there was something absolutely preposterous in the volume and bulk to which, for example, some of our treatises on materia medica extend, and the enormous quantity of absolutely irrelevant matter. He was not one who would take the student through the length and breadth of physical optics because there are particular substances used in medicine which change the polarization of light or exhibit the phenomenon of fluorescence. This was the Scylla; total ignorance was the Charybdis.

But there was a more important aspect of the matter: the relation in which the science of medicine stands to physical science in general. The scientific man makes use of the data of physical science for the purpose of reasoning out the exact conditions of the case which he has before him, and for the purpose of applying the precise measures which are adapted to meet that case. Having this conception of what is meant by scientific medicine, what has to be done in medicine before we shall reach this condition? For although, looking about us to surgical practice particularly, and perhaps in some few cases in medicine, it would be possible to adduce instances of what he should call perfect medical science—that is to say, where you have a complete knowledge of the lesion, and a complete knowledge of the conditions required to restore that lesion, yet these were among the rare cases presented to the physician or surgeon. And in the

majority of cases we had no such complete knowledge. There was a wicked and libellous old story, in which it was said, by way of illustration of medical practice, that in a diseased man nature and disease are as two men fighting; and that the doctor is a blind man who comes with a big stick, and hits hard, and sometimes hits the disease, and sometimes hits nature. If he might modify the story, he should say that, in these days, the physician is not blind, but, on the contrary, is a remarkably sharp-sighted, acute, painstaking and conscientious person; but that he finds himself in a very dim twilight; and that, having ascertained that the light is very uncertain, and very apt to vary, he rather, as a conscientious person, abstains, as far as possible, from using his club, and confines himself to what, if he might say so without offence to that company, was known as the part of a judicious bottle-holder—ready to pick up nature whenever she gets exhausted, and bring her up to time. That he took to be a fair description of the modern practice of physic; and no doubt it indicated a beneficent change satisfactory to the patient and to the physician, who feels that his club is not stained by innocent blood. But this was not final; and we must all look forward to the physician attaining as clear a mental vision of the condition of a diseased part, and the means of relieving it, as the surgeon has in the plainest kind of surgery. What the physician wants is more light. He wants a better light upon the arena of the fight, so that he may be able to remove the obstacles out of the way of nature, and may be able, as occasion offers, to deal her opponent a severe blow, without the chance of doing her an injury. That light must come from the cultivation and improvement and the refinement in every way of those sciences which furnish us with the data for deduction—the abstract physical sciences of anatomy, physiology, chemistry, physics, and so forth.

Upon a clear appreciation of this all our theories of medical education must eventually turn. Let it be granted, then, as he believed it must be, that a thorough grounding in physical science was the basis of all medical education. How was this attainable? One of the most experienced surgeons in these islands had raised his voice against the immense indigestible mass of information crammed into the medical student now in the course of three years. Coming without a scintilla of a notion of anything about science, he was expected to learn physics, natural philosophy, chemistry, botany, zoölogy, comparative anatomy, human anatomy, histology, pathology, therapeutics, medicine, surgery, dietetics, jurisprudence. The thing was absurd. You might make a sort of intellectual *foie gras* of him; but you could not give him information of the kind and scope which he ought to have in that time, and with the existing methods. They might be taught to pass examinations. He was going to say he would teach a dog to pass an examination, or at least nine tenths of the examinations that men pass through; but they would not acquire a knowledge of the facts from their own observation, and the only knowledge that is of the

smallest use. The practical and purely professional subjects alone must more than fully occupy every minute of the three years of study. What, then, was his meaning in dwelling on the enormous importance of physical science to students of medicine? He held that all this acquaintance with the principles of physics and chemistry and biology, ought to have been acquired in the course of their general education. If those who regulate education in this country had the smallest conception of what their real duties were, or of what the purposes of mankind and the conditions of its progress at the present were, they would give that knowledge; and those who wish to improve medical education must, to his mind, throw themselves into that object; they must compel those who give us primary education to make physical science a very large constituent portion of that education.

It was the duty of every man to lift up his voice against the scandalous perversion of human time and human ability under the system of gerund-grinding which now prevailed at schools. And, for the one particular purpose of medical training, it was the duty of every one of us who had that cause at heart to endeavor to exercise such an influence that the medical teacher shall not have to commence upon a mere *tabula rasa*, but that the young men who come up for medical education shall have been accustomed to acquaint themselves with chemical formulæ and chemical reactions, shall have learnt the great distinguishing features of the different forms of life, and the broad facts of physiology, the elementary outlines of which might—he spoke from experience—be taught perfectly well to boys of ten years old. How much easier the task would then be, not only for the learner, but for the teacher; and how vastly greater would be the stride made by every man towards that great goal already indicated, the establishment of a scientific medicine.—*Lond. Chem. & Druggist.*

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OUR PUBLIC BATHS.

The numerous attendance at the bathing houses which have recently been opened to the public by the City Government shows how poor were our previous facilities, and how thoroughly this measure, which we have so strongly advocated in past years, is appreciated by the people. So popular, in fact, have these establishments already become, that they fail to accommodate the crowds which resort to them for refreshment and cleanliness at some hours of the day, although six floating baths have been erected along our winding sea margin. A visit to any of them on a warm day will satisfy our readers that in no way could money have been expended for the health and comfort

of our citizens so wisely as in this, and that in point of construction and internal management they are nearly all that could be desired. The economy and diversity of plan which have been observed in their erection point to their experimental character, and we doubt not that if the success of the present season warrants the outlay, more commodious and permanent structures will be added another summer.

But now that we have our public baths and there is no question as to the good they will do, there remains to be considered the possibility of evil connected with them. There is much more in a bath than water, and its effects are by no means limited to its cleansing action upon the skin. The chemical character of the matters it holds in solution are by no means to be disregarded, but the most important element in its influence upon the human system is its temperature. Recent experiments have shown that a man may live continually in a tub of water for a third of a year in almost the same condition as in atmospheric air, provided a certain temperature be maintained, while a plunge into the chilled waters of the ocean produces effects which are immediately felt, and which are almost wholly dependent upon the cold it contains. First comes the sudden shock and gasp, the skin becomes pale and assumes the spasmodic state of "gooseflesh," the external parts shrink, the blood recoils and is driven in upon the central organs, and the respiration is hurried and impeded. After the bath follows the reaction. The lungs and heart seem to act as if a load had been lifted from them, the blood is forced back through its natural channels with increased vigor, the skin glows, excretion is promoted, and a feeling of ease and elasticity pervades the whole body, which terminates in a delightful languor if rest is immediately taken. This is the natural sequence of phenomena, if the bather is healthy and does not remain in the water too long. But some of the internal organs may be weak and unable to accommodate themselves to the large amount of blood forced in upon them by the peripheral chill, and to free themselves when the bath is ended. In such cases headache, lassitude and disordered secretions may follow, or even more dangerous results. There are persons who appear to have so little vitality that even a momentary emersion produces a chilliness which lasts a long time, and whom blue skins and chattering teeth indicate to be wholly unfitted for the cold bath.

There are, indeed, many precautions to be observed, to render sea-bathing perfectly harmless, and among the thousands who daily resort to these establishments there must be many upon whom it may produce injurious effects. The children, particularly, who frequent them remain far too long in the water and bathe too frequently, and some means should be devised by which this evil can be prevented. Our present object in writing is to call the attention of those who have charge of the baths to the importance of having a series of rules prepared by some competent physician for the use of bathers, and of placing them where they will be read by all. They should contain advice as to the proper time of day, the length of time after eating, how often and how long one should bathe, as to the heated condition of the body, the proper way to enter the water, &c. Precautions might also be given concerning the diseases and conditions in which bathing is dangerous. Lastly, we hope to see explicit directions also posted on the

walls of each bathing house with regard to the ready methods to be used for the resuscitation of the drowned.

CHOLERA AND QUARANTINE.

Can cholera be excluded by quarantine? The general conviction in Europe seems to be that quarantines are of no service. Quarantines, for the most part, as they have been enforced there, have not prevented the invasion of the disease, unless perhaps one little town be regarded as an exception. There is, on the neck of land made by a bend in the Volga, a settlement of Moravians that has been for a great while the admiration of all travellers for its neatness, perfect cleanliness, and for the good habits of the people. When the cholera has marched up the Volga, assailing almost every town in three several epidemics, this little Moravian Serepta has been left untouched. It is said, to be sure, in Copland's dictionary, that the authorities preserved a strict quarantine, and admitted nothing that could bring the disease to them; but whether it was from quarantine or from cleanliness, they seem to have escaped entirely. In its other relations quarantine seems not to have been effectual; but is it not plain, from the history I have given you of the several importations of the disease into this country, and into England, Scotland, Ireland, Nevis, and Guadaloupe, that if passengers and goods whose admission into these countries and islands was coincident with the outbreak of cholera could have been excluded or kept at a sufficient distance, the disease itself might have been excluded also? It does not seem to me that the question of quarantine is to be abruptly decided in the negative. Whatever may be said of the failures in Europe, whether they have arisen from incomplete restrictions and impracticability, or from the epidemic constitution of the atmosphere, or the admission of diarrhœa while cholera was excluded—here, far away from the sources of the disease, the great ocean intervening, at a distance that the miasm cannot reach, the rule may well be reversed. Experience has fully shown that as in armies, so in ships, the disease has a limited existence. It has repeatedly been brought into our harbor when it has not invaded our city. It may even become epidemic at the Quarantine Hospital, and the city escape. I have already called your attention to two instances of this occurrence. It appears from the *Report on Cholera of the Council of Hygiene and Public Health* (Citizens' Association), that there have been at least *fourteen* such epidemics within the old quarantine inclosure, and it is well known that the city has been visited but four times. There have been ten epidemics at that station which did not extend beyond its wall, or at least beyond the shores of the island on which that institution is situated. "Ten of these fourteen epidemics," the writer says, "unquestionably depended on cholera patients from ships, and in six instances at a time when there was no cholera upon our Atlantic coast." Can it be said then that quarantine, even in the slipshod and inadequate manner in which it has for the most part been enforced, has been a failure here? For it will hardly be claimed, such is the attraction of cholera towards large cities, that on these occasions the atmosphere of New York was free from those certain elements which are susceptible of poisonous transformation under the influence of the cholera poison, when at a

distance of only six miles in the open country those elements demonstrated their presence in violent epidemics. Yellow fever has probably been a hundred times confined to our harbor, when it has been brought here in ships, since its last epidemic prevalence in 1822; and if the virus of cholera poison is a miasm, as that of yellow fever is believed to be, it ought to be subject equally to exclusion by the same means. If, indeed, the disease is propagated by the discharges unchanged, or fermented, or combined with telluric agencies, all the more should it be subject to exclusion by force of isolation, time, disinfectants and sea-water. It has already had a success at this port which of itself goes far to disprove the doctrine that the malady is propagated by an atmospheric constitution alone. Quarantine, I repeat, has not been a failure in this country. Its rigid enforcement entails much personal suffering among passengers, and often heavy losses on property; and for those reasons it is often so relaxed as to be ineffectual. But I fully believe that, with the proper agencies and accommodations which it is notorious the port of New York now wofully lacks, the pestilence could be excluded in its approaches from the sea, forever. If this is true of New York, it is true of every port in the country; and if it is true, as I believe it is, that the disease has never visited this side of the Atlantic except by the aid of importation, this would amount to perpetual exclusion. Amidst contending interests it may be sometimes difficult to decide what the precise duty of the authorities may be in those matters. I have given you the facts, and yet you must form your own opinion as to the value of quarantine. If it is possible to ascertain whether the poison can be transported by the wind or in the air—and if so, how far—and in that way extend its ravages, it would aid in deciding the distance at which quarantine rules should be enforced.—*From Prof. Clark's Lectures on Cholera, in New York Medical Record.*

The following are some of the conclusions bearing upon the questions of the infectious character of Asiatic cholera, and the necessity of a general, uniform and efficient system of quarantine at all our ports, as communicated in a letter to the Hon. Z. Chandler, Chairman of the Senate Committee on Commerce, by Charles A. Lee, M.D., of New York, and J. M. Toner, M.D., of Washington, D. C.:—

We apprehend there is no apology necessary for making suggestions at this time that may assist in devising and putting in practice a system of quarantine that will, in conjunction with internal sanitary regulations, prevent the introduction into our country of foreign and communicable diseases.

There is also a respectable and highly influential class of physicians and gentlemen who plant themselves on the broad ground of non-contagion in yellow fever and cholera, and therefore oppose all quarantine of persons. They, however, admit the necessity of throwing some protection around the community by favoring the fumigation and disinfection of vessels and cargoes when there has been much sickness upon the voyage or deaths from a specific and communicable disease. This class of physicians hold that the *materies morbi* or *fomites*, which are the cause of epidemics, and which are by many considered contagious, are purely atmospheric, and are carried in the confined air of

ships, in merchandise, and through the open air, across the ocean and over a continent.

As a general rule, they leave out of view the important fact that there is a variable period of incubation in most infectious diseases, which extends from a few hours to ten or fifteen days. Suppose we grant that the essential poison of a communicable disease is not organic, there is, nevertheless, an incubatory period in all such diseases, so that a passenger may leave an infected ship apparently in perfect health, and may even have taken the precaution to have his clothing and trunks disinfected and fumigated, nevertheless the disease may be developed after having lain dormant in his system ten or twelve days, and thus, in some distant city or place, establish a new centre for the dispersion of the poison, from which others coming within the sphere of its action may be affected, and the disease spread indefinitely.

Believing, as we do, that neither communicable yellow fever nor cholera has ever originated within the United States, and that the first cases in each of the epidemics which have prevailed in our country can be traced directly to infected emigrant ships or to passengers, merchandise, or personal effects which have been brought from infected vessels or foreign ports, we therefore contend that if an efficient and uniform system of quarantine be established at every port in the United States through which passengers or foreign merchandise arrive, these diseases may be prevented from entering and spreading over our country.

With the improvements which modern chemistry and science have placed in the hands of the profession, we are enabled to facilitate commerce by a speedy and thorough disinfection of a vessel and cargo, without the delay of first unloading it. We believe that the period of detention of passengers at quarantine may be materially shortened, and its dangers greatly lessened, by establishing a proper system of inspection and classification of all persons landing from infected vessels or ports, into the "infected," the "suspected," and the "healthy," and maintaining a rigid non-intercourse between the several classes.

The assertion that quarantine has never kept cholera out of the country or city is a gratuitous assumption. Numerous instances and facts exist in proof of the contrary, as has been shown in Spain, Greece, and Italy, and recently at New York, Quebec and Halifax. But should the present notoriously inefficient system of quarantine as practised at many of our ports fail, it would militate nothing against the principle recommended, but only be a further proof of the inefficiency of quarantine as now conducted. We know, as does every person at all familiar with American quarantine, that there is not that perfect system of inspection, sequestration and isolation among the different classes of patients that humanity demands, and the nature of portable and infectious diseases requires for their complete arrest and annihilation.

The purpose of a quarantine, and the nature of the diseases met with there, make it obvious to a practical mind that every properly organized quarantine establishment requires to be located at a considerable distance from thickly-populated districts, and to have extensive grounds for anchorage, and separate and distinct hospital departments, so as to allow a proper classification of all persons arriving at the station. 1. A receiving and inspection. 2. A general hospital

department for all cases of accident, and diseases other than those of a contagious character. 3. A hospital for infectious diseases. 4. A department for the suspected, in whom contagious disease may or may not be developed. 5. A department for the convalescent. 6. A department for those who are unaffected, and in the enjoyment of good health, but who for prudential reasons should be detained, after leaving an infected vessel, a time equal to the longest known incubatory period of the prevalent disease. As quarantine is most essential during the months from May to November, and not likely to be called for during the remainder of the year, it is not thought that it would be necessary for the Government to erect expensive warehouses and separate hospital departments at each of the quarantine stations. Temporary tents or tenements would answer. The Government has no doubt in its possession a vast number of army tents or barracks which would answer admirably at most of the stations. The essential conditions of an efficient quarantine are, a good wide anchorage-ground to the windward of the hospitals; warehouses for a class of goods which cannot be so speedily disinfected as to make it safe to land it with the rest of the cargo; and hospitals properly separated for the accommodation of the patients according to their condition. If a principle of this kind, founded upon separation and non-intercourse of the departments, furnished with the most approved styles of water-closets and privies, were adopted at quarantine, the apprehensions and mortality from cholera would be greatly lessened. This principle of complete separation and sequestration of departments, with a space of a hundred or more feet between, and such subdivisions of departments as circumstances and experience may suggest, would, no doubt, have the effect to arrest and successfully prevent the introduction of cholera.—*New York Medical Record.*

VITAL STATISTICS OF BOSTON.

FOR THE WEEK ENDING SATURDAY, JUNE 30th, 1866.

DEATHS.

	Males.	*Females.*	*Total*
Deaths during the week - - - - - - -	42	33	75
Ave. mortality of corresponding weeks for ten years, 1855—1865	34.5	35.1	69.6
Average corrected to increased population - - - - -	00	00	75.9
Death of persons above 90 - - - - - - - -	0	0	0

MARRIED,—At New York, June 19th, Calvin Pratt, M.D., of Bridgewater, Mass., to Miss Addie Edstrom, of New York.

BOOKS AND PAMPHLETS RECEIVED.—Elements of Prognosis in Consumption. By James E. Pollock, M.D. London. (From the Author.)—Shakspeare's Delineations of Insanity, Imbecility and Suicide. By A. O. Kellogg, M.D. New York.—Influence of Distance from and Nearness to an Insane Hospital on its use by the People. By Edward Jarvis, M.D.—On Foreign Bodies in the Ear. By Laurence Turnbull, M.D. Philadelphia.—On Cholera, with Map and Microscopic Drawings. By Wm. B. Fletcher, M.D. Cincinnati. On Progressive Locomotor Ataxia. By Robert Bartholow, M.D. Cincinnati.

DEATHS IN BOSTON for the week ending Saturday noon, June 30th, 75. Males, 42—Females, 33. Accident, 3—anæmia, 1—inflammation of the bowels, 1—congestion of the brain, 2—disease of the brain, 1—bronchitis, 1—cancer, 1—cholera infantum, 3—cholera morbus, 1—consumption, 9—convulsions, 2—croup, 2—debility, 1—drinking cold water, 1—dropsy, 2—dropsy of the brain, 1—drowned, 2—dysentery, 1—erysipelas, 2—typhoid fever, 1—typhus fever, 1—gastritis, 1—disease of the heart, 2—disease of the hip, 2—infantile disease, 1—disease of the liver, 1—inflammation of the lungs, 5—measles, 2—neuralgia, 1—old age, 2—paralysis, 1—peritonitis, 1—premature birth, 3—rheumatism, 1—scalded, 1—sunstroke, 5—teething, 1—trismus nascentium, 1—tympanitis, 1—unknown, 4.

Under 5 years of age, 25—between 5 and 20 years, 4—between 20 and 40 years, 26—between 40 and 60 years, 12—above 60 years, 8. Born in the United States, 45—Ireland, 21—other places, 9.